

# **Performance Studies of PV: an On-the-fly Model-checker for LTL-X Featuring Selective Caching and Partial Order Reduction**

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## ***Abstract***

We present an enumerative model-checker PV that uses a new partial order reduction algorithm called Twophase. This algorithm does not use the in-stack check to implement the proviso, making the combination of Twophase with on-the-fly LTL-X model-checking based on nested depth-first search, as well as with selective state caching very straightforward. We present a thorough evaluation of PV in terms of several criteria including states, memory, search depth, and runtimes. Our very encouraging results, often orders of magnitude better, are objectively explained in this paper. We also explain the different selective state caching methods supported by PV as well as its user interface geared towards verifying cache coherence protocols for conformance against formal memory models. We offer the source code of PV as well as our examples through our webpage.